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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,035	11/21/2003	Francis Yu-Hei Tsang	2408.001US1	2542
21186 7590 05/12/2008 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402				
EXAMINER PALABRICA, RICARDO J				
ART UNIT 3663		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/720,035

Applicant(s)

TSANG ET AL.

Examiner

Rick Palabrica

Art Unit

3663

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-29 and 79-82 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-25, 27-29 and 79-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's 3/27/08 Amendment, which traversed the rejection of claims in the 11/27/07 Office action, is acknowledged.

Applicant's arguments have been fully considered but they are not persuasive in regard to the rejections under 35 U.S.C. 112, first and second paragraphs.

Response to Arguments

2. Applicant traversed the rejection of claims under 35 U.S.C. 112, first paragraph on the grounds that: a) the invention is directed to a single nuclear voltaic cell and not one "intended to power a 'large transport vehicle such as a submarine or ship; or to have an output in the range of 1,000 megawatts as asserted in the Office action"; b) "the specification speaks only of a power capacity exceeding a megawatt;" c) "if the 6 questions raised in the Office Action were to be answered, they could only be answered by a specification that was, in fact, a blueprint for a specific nuclear voltaic cell- if even then; as but one example, ...the required level of purity for the liquid semiconductor is almost certainly, to at least some degree, subject to tradeoffs to other concerns (technical or commercial), and thus there is likely no single "correct" answer to the required level of purity;" d) "the detailed intricacies of the invention ... would be within the level of skill of those familiar and experienced in the design of nuclear power sources." The examiner disagrees.

As to argument a):

First, MPEP 2107.02 (II)A states:

"A statement of specific and substantial utility should fully and clearly explain why the applicant believes the invention is useful. Such statements will usually explain the purpose of or how the invention may be used (e.g., a compound is believed to be useful in the treatment of a particular disorder). Regardless of the form of statement of utility, it must enable one ordinarily skilled in the art to understand why the applicant believes the claimed invention is useful."

The disclosed utility of the claimed invention is to generate large amounts of electrical energy and NOT to generate current from a single nuclear voltaic cell with a dimension of 1.63×10^{-2} cm. Note that applicant states in his specification that the purpose of his invention is to meet

"the long felt need for a method of converting nuclear energy to electrical energy that is small in size, reliable and can generate large amounts of electrical energy for use in submarines, surface ships, and as a battery to power a whole range of products - including, for example, military equipment, satellites and space vehicles." See page 6, first paragraph, of the Specification.

This is the only disclosed utility for the invention that is small in size as applicant himself admits. No other utility is mentioned for this 1.63×10^{-2} cm sized claimed invention. For example, the specification does not cite its use as battery power for a digital wrist watch! In this regard, note MPEP 2106.II.C states:

"[C]laims must be interpreted 'in view of the specification' without importing limitations from the specification into the claims unnecessarily."

Clearly, the claimed invention is NOT to generate a miniscule amount of power but large scale electrical energy generation.

Note also, Brenner v. Manson, 148 UPQ 689, where the Court said:

"The basic *quid pro quo* contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point – where specific benefit exists in currently available form – there is insufficient justification for permitting an applicant to engross what may prove to be a broad field.

"This is not to say that we mean to disparage the importance of contributions to the fund of scientific information of something 'useful', or that we are blind to the prospect that what now seems without 'use' may tomorrow command the grateful attention of the public. But a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion. '[A] patent system must be related to the world of commerce rather than to the realm of philosophy. ****' [underlining provided, footnote omitted]."

Thus, while applicant can claim only a single nuclear voltaic cell, he must still show enablement for the disclosed utility.

Second, if the applicant insists that his invention is directed to only one small cell, then the claims are rejectable under 35 U.S.C. 101 as lacking utility because it is not capable of being used for the disclosed purpose of providing:

"a self-contained method and apparatus for converting nuclear power that can generate large amounts of electrical power for long periods of time without the need for frequent refueling and require little or no maintenance."

As to argument b), applicant is misquoting his own specification because the cited passage states:

"... to provide power up to and exceeding the megawatt range."

This means more than 1 Mw and includes 1000 Mw, so as to achieve the stated objective of generating large amounts of electrical energy for submarines, etc.

In an apparent attempt to find a "utility" for a single cell, applicant appears to use as basis the statement in the specification,

"[f]or small power needs a single or small number of cells may be used."

This has no probative value because: a) applicant has not defined what he means by "small power"; b) when taken in the context of the claimed purpose of generating large amounts of electrical energy, e.g., 1000 Mw, "small power" implies about 100-200 Mw, and not the 1Mw level that applicant alleges.

Even if one assumes a 1 Mw power for the claimed invention (which is not the admitted utility), applicant has not disclosed how many of his cells will be required to produce this power level. This is one of the several operational parameters, which is important for the exercise of the claimed invention but not disclosed in specification. Failure to provide these parameters is evidence of undue experimentation to exercise the claimed invention.

The examiner also notes that the size of the cell, which is only now being disclosed by the applicant, is important information that should have been provided in the as-filed application. One cannot rely of the Remarks section of an amendment to provide subject matter that the specification itself must recite for completeness.

As to argument c), this clear admission by applicant is further proof of lack of enablement because of that undue experimentation. The statute requires the application itself to inform, not to direct others to find out for themselves; In re Gardner et al., 166 USPQ 138, In re Scarborough, 182 USPQ 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art, In re Hirsch, 131 USPQ 198.

As to argument d), applicant's assertion has no probative value because represents nothing more than a conclusory statement unsupported by objective factual evidence (see MPEP 716.01(c) and MPEP 2145).

3. Applicant traversed the rejection of the claims under 35 U.S.C. 112, first and second paragraph in regard to the omission of the critical element of scrubbing and purifying the liquid semiconductor.

The rejection is still appropriate even though the 11/27/07 Office action was intended to also cite the following paragraph in the specification (in addition to paragraph 0014) to demonstrate the criticality of said missing element. Note the following statement in the specification:

"Each embodiment of the current invention relates to the use of a liquid semiconductor in conjunction with a radiation source: either fissile material such as uranium-235 or plutonium, or a radioactive isotope. Use of a liquid semiconductor minimizes the effects of radiation damage, because liquid semiconductors rapidly self-heal, and can be purified or "scrubbed" of fission fragments left from fission events." See paragraph 0021 of the Specification. Underlining provided.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 23-25, 27-29, and 79-82 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons are the same as those stated in section 2 of the 11/27/07 Office action, as further clarified in section 2 above, which reasons are herein incorporated

5. Claims 23-25, 27-29, and 79-82 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling.

The reasons are the same as those stated in section 3 of the 11/27/07 Office action, as further clarified in section 3 above, which reasons are herein incorporated

6. Claims 23-25, 27-29, and 79-82 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements.

The reasons are the same as those stated in section 4 of the 11/27/07 Office action, as further clarified in section 3 above, which reasons are herein incorporated

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:00-4:30, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

May 1, 2008

/Rick Palabrica/
Primary Examiner, Art Unit 3663